

- (6) v. MARTENS.—“Ueber einige ostasiatische Süßwasserthiere,” Archiv f. Naturgeschichte, vol. xxxiv. 1868, p. 47.
- (7) MIERS.—“Malaysian Crustacea,” Ann. & Mag. Nat. Hist. ser. 5, vol. v. 1880, p. 382, pl. xv. figs. 3 and 4.
- (8) SPENCE BATE.—“Crustacea Macrura,” ‘Challenger’ Reports, vol. xxiv. pp. 691-702, pls. cxviii.-cxx.

## EXPLANATION OF PLATES XIII. &amp; XIV.

Fig. 1. *Atya Wyckii*,  $\times 5$  diameters.

Fig. 2. The same, natural size.

Fig. 3. Mandible. *a*, molar process; *b*, edge, bearing a few coarse feathered hairs; *c*, edge, bearing numerous fine hairs; *d*, triturating surface.

Fig. 4. First maxilla. *end.*, endopodite.

Fig. 5. Second maxilla. *a*, protopodite; *b*, anterior end of scaphognathite; *c*, posterior end of scaphognathite bearing long hooked hairs.

Fig. 6. First maxillipede.

Fig. 7. Second maxillipede. *a*, endopodite; *b*, exopodite; *c*, podobranch; *d*, mastigobranch.

Fig. 8. Third maxillipede. *a*, endopodite; *b*, exopodite; *c*, rudimentary mastigobranch; *d*, arthrobranch.

Fig. 9. First pereopod. *d*, mastigobranch.

Fig. 10. Second pereopod. *d*, mastigobranch.

Fig. 11. Third pereopod.

Fig. 12. Chela of first pereopod, showing the terminal hooks and brushes.

Fig. 13. Chela of second pereopod.

Fig. 14. One of the hairs of the terminal brushes of a chela, showing the recurved hooks with which it is provided.

(I am indebted for figs. 1 and 2 to the skill and accuracy of my sister, Miss A. W. Hickson.)

XLVIII.—*Notes on Reptiles and Frogs from Dominica, West Indies.* By Dr. A. GÜNTHER, F.R.S., Keeper of the Department of Zoology, British Museum.

Two small collections made in the island of Dominica by Mr. Ramage, a gentleman engaged by the West-Indies Exploration Committee, contain a very interesting series of the reptiles and frogs of that island. Mr. Ramage has been working in the island for a short period only, so that we may expect further additions to this present list, which consists of five species of lizards, three of snakes, and two of frogs. Of particular interest would be observations on the mode of propagation of the *Hylodes*.

*Thecadactylus rapicauda* (Houtt.).

Two specimens, from Laudat and Laion. Generally distributed in the neotropical region.

*Sphaerodactylus Copii* (Steind.).

Three specimens from Laion agree in the technical characters with this obscure species.

*Ameiva fuscata*.

*Ameiva fuscata*, Garman, Bull. Ess. Inst. xix. 1887, p. 5.

Closely allied to *A. surinamensis*; the Dominica form may be kept distinct on account of the modified scutellation of the fore and hind feet. The large scutes of the forearm are separated from the rows of scutella of the toes by broad areas of very minute scales.

*Anolis alliaceus*.

*Anolis alliaceus*, Cope, Proc. Ac. Sci. Philad. 1864, p. 168.

*Xiphosurus ocellatus*, Cope, Proc. Am. Phil. Soc. xviii. 1879, p. 274. (Dominica.)

*Anolis ocellatus*, Garman, Bull. Ess. Inst. xix. 1887, p. 30. (Dominica.)

*Anolis lividus*, Garman, l. c. p. 43. (Montserrat.)

*Anolis sabanus*, Garman, l. c. p. 39. (Saba.)

*Anolis Leachii*, part., Boul. Lizards, ii. p. 29.

Sixteen specimens of both sexes and all sizes.

Mr. Boulenger has not without reason referred the Dominica *Anolis* to *A. Leachii*. However, Dominica specimens can be recognized at a glance, on account of their extremely minute scutellation, resembling in this, as well as the other points, specimens from Montserrat and Saba, and differing widely from those from Guadeloupe (*Xiphosurus ferreus*, Cope, = *Anolis Leachii*, D. B., Bocourt). The difference in the size of the scales is conspicuous on every part of the head and body, and particularly on the temple. However, it must be admitted that some specimens in the Museum, for instance the type of Gray's *Anolis reticulatus*, whose origin is not known, are intermediate between the small- and large-scaled forms.

Having the type of *Anolis alliaceus* in the Museum, and having received from the museum at Harvard College specimens of Cope's *A. ocellatus* and Garman's *A. lividus* and *A. sabanus*, I cannot entertain any doubt as to their identity.

The latter only might be kept distinct on account of its singular coloration; structurally it does not differ from the others.

*Mabuia agilis* (Radde).

*Mabuia agilis*, Boul. Liz. iii. p. 190; Günth. Biol. C.-Amer., Rept. p. 33.

*Mabuia dominicana*, Garman, Bull. Ess. Inst. xix. 1887, p. 52.

Eight adult specimens from Laudat and Laion.

Other well-authenticated localities are:—Mexico, Yucatan, Guatemala, Vera Paz, Salvador, Panama, Veragua, Venezuela, Ecuador, British Guiana, Rio Janeiro, Martinique, Island of Grenada.

Mr. Garman describes specimens from Dominica as a distinct species, said to be distinguished from *M. agilis* by having the supranasals separate from each other, and possessing from 68 to 72 scales in a series between the chin and vent. His *M. agilis* is stated to have the supranasals in contact with each other and only 54 or 56 scales between chin and vent.

The eight adult specimens from Dominica before me vary in both these respects; some have the supranasals in contact, others not. Between chin and vent there are 60 scales in two, 62 in one, 63 in two, and 64, 65, and 67 severally in single specimens. Therefore the characters on which Mr. Garman based his distinction are in these specimens so obviously variable that no herpetologist will place any reliance upon them.

But to prove the variability of these characters in this species beyond further dispute I took from a gravid female six embryos, all fully developed and about half the length of the mother. The mother had the supranasals in contact with each other and 62 scales between chin and vent. Of her progeny two had the supranasals as in the mother, in three they were separate from each other, whilst one might be assigned to either category. The scales on the abdomen are in 57 rows in two of these embryos and in 61, 62, 65, and 66 rows severally in their brothers.

Specific distinctions in these days are held to be, and often may be, matter of individual opinion, and, as a rule, I abstain from entering into any discussion about them; but they sometimes have a direct bearing upon wider and more important questions. In this case any one studying the distribution of reptiles over the West Indies would, by relying upon statements such as are propounded by Mr. Garman in his

recent publications on West-Indian reptiles, be misled into the view of a more complete isolation and specialization of the faunas of the various islands than obtains in reality. He states in fact in this instance that the widely distributed *Mabuia agilis* has been sufficiently differentiated in Dominica to form a distinct species or whatever it may be called, whilst the examination of even a small number of examples disproves this statement. Distinctive characters, no matter how trivial they appear to be, become important enough to the systematic zoologist if they be found constant in a number of specimens and correlated to some other point of the life of an animal; but unless this has been ascertained to be the fact, their indiscriminate use impedes rather than advances zoology.

*Liophis julia*.

*Acrophis julia*, Cope, Proc. Am. Phil. Soc. xviii. 1879, p. 274.

*Dromicus julia*, Garman, *ibid.* xxiv. 1887, p. 281.

Eight specimens from Laudat and Laion.

This snake might be taken for one of the numerous variations of *L. cobella* or *L. Merremii*, but differs in having a larger eye and in its peculiar coloration, which is constant in all the specimens collected by Mr. Ramage.

In its physiognomy it reminds us much of some of the smaller species of *Dromicus*; but the subquadrangular black spots of the abdomen are very characteristic of snakes of the genus *Liophis*.

Habit moderately slender; head a little wider than the neck; orbit rather large, as wide as its distance from the nostril. Scales in seventeen rows, without apical groove. Ventral shields 159-168; anal divided; subcaudals 64-86\*.

Eight upper labials, the fourth and fifth entering the orbit. The single præorbital reaching to the upper surface of the head, but not extending to the vertical; two postoculars. Loreal square; temporals 1+2. Six of the lower labials are in contact with the chin-shields. Ground-colour slaty black, nearly every scale has a large bluish-white spot at the base. These spots are, however, irregular in size and also in

- \* Specimen *a*: V. 159, SC. 85.  
 " *b*: V. 161, SC. 84.  
 " *c*: V. 162, SC. 76.  
 " *d*: V. 162, SC. 81.  
 " *e*: V. 165, SC. 64.  
 " *f*: V. 165, SC. 86.  
 " *g*: V. 168, SC. 81 (end broken off).  
 " *h*: V. 168, SC. 81.

position, so that the pattern of coloration shows on the whole an irregular band of arrangement. Head above black, nearly all the shields with a light margin in front, a portion of the suture between the occipitals white or whitish. Lower parts white, either uniform or with scattered subquadrangular black spots. A very young specimen  $7\frac{1}{2}$  inches long has the upper parts of a nearly uniform slate-colour.

The largest of the specimens measures 22 inches, of which the tail takes  $6\frac{1}{2}$ .

*Dromicus leucomelas* (D. & B.).

*Alsophis sibonius*, Cope, *l. c.* p. 275 ; Garman, *l. c.* p. 283.

Four specimens from Laudat.

This species occurs also in Guadeloupe and San Domingo, and, according to Duméril and Bibron, in Marie-Galante.

*Boa diviniloqua* (Laur.).

An adult and young specimen from Laion.

At present I am not prepared to give an opinion as to whether this snake should be specifically separated from *Boa constrictor*.

*Cystignathus pentadactylus* (Laur.).

Six adult specimens from Laudat.

This frog is widely distributed in Brazil and the Guianas. There is a distinct indication of the digital fringe, which induced me to refer the first specimen I saw from Dominica (*Cat. Batr. Sal.* p. 27) to *C. ocellatus*.

*Hylodes martinicensis* (Tsch.).

A great number of specimens of many colour-varieties from Laudat and Laion.

Occurs also in San Domingo, St. Vincent, and Barbadoes.

XLIX.—*A new Fossil Spider* (*Eoatypus Woodwardii*).

By HENRY C. MCCOOK, D.D.\*

WHILE visiting the British Museum of Natural History at South Kensington, London, in the summer of 1887 I was

\* From the 'Proceedings of the Academy of Natural Sciences of Philadelphia,' 1888, pp. 200-202.